**MEMORANDUM**

TO: Angela Marconi, P.E., BCEE

FROM: Lindsay T. Rennie

**SUBJECT: Delaware City Refining Company**
**Appealed Permits Resolution**

DATE: July 19, 2019

## BACKGROUND

The Delaware City Refining Company appealed the three referenced permits contesting the inclusion of short term $NO_X$ limits. DCRC's position was that the $NO_X$ Cap afforded them operational flexibility in achieving $NO_X$ reductions and felt the short-term limits were unnecessary and inappropriate. DCRC submitted the following appeals:

1. EAB Appeal No. 2014-04 for Boilers 3 and 4 Steam Injection Projects
2. EAB Appeal No. 2014-05 for Combined Cycle Units I and II Selective Catalytic Reduction Project
3. EAB Appeal No. 2014-07 for Secretary's Order No 2014-A-0014
4. EAB Appeal No. 2015-03 for the Boilers 3 and 4 Induced Flue Gas Recirculation Project
5. EAB Appeal No. 2015-05 for Secretary's Order No. 2015-0005-AQM-03-00016 (Renewal)
6. EAB Appeal No. 2015-06 For Fluid Catalytic Cracking Unit Selective Non-Catalytic Reduction Project
7. EAB Appeal No. 2016-02 for Fluid Coking Unit Ultra-Low $NO_X$ Burner Project
8. EAB Appeal No. 2017-04 for the FCCU SNCR Project Operation Permit
9. EAB Appeal No. 2017-06 Title V Operating Permit Significant Permit Modification to AQM-003/00016

On July 11, 2018, DNREC signed a Settlement Agreement, resolving the above appeals as well as enforcement actions dating back to the restart.

## BOILER PERMITS

DCRC submitted two appeals related to the boiler permits. The Steam Injection project permits (**Permit: APC-90/0290-OPERATION (Amendment 10) – Boiler 3** and **Permit: APC-90/0291-OPERATION (Amendment 3) – Boiler 4**) were issued May 19, 2014; the construction permits were issued July 15, 2013. These permits allowed the operation of a steam injection system and reduced the $NO_X$ limits from the 0.2 lb/mmbtu RACT limit to 0.16 lb/mmbtu on a 24 hour rolling average basis.

DCRC submitted a second appeal after the issuance of the Induced Flue Gas Recirculation (IFGR) Project permits (**Permit: APC-90/0290-CONSTRUCTION/OPERATION (Amendment 12)(FE) – Boiler 3** and **Permit: APC-90/0291-CONSTRUCTION/OPERATION (Amendment 5)(FE) – Boiler 4**) dated January 15, 2015. This permitting action allowed the construction and operation of an IFGR system that reduced the $NO_X$ limits from 0.16 lb/mmbtu to 0.13 lb/mmbtu on a 24 hour rolling average basis. This permit contained a 6 hour exemption during startup and shutdown periods during which the $NO_X$ limit would return to the 0.2 lb/mmbtu RACT limit.

Each project has an existing amendment for each boiler; the new permits combines provisions of both projects, as appropriate, into a single amendment for each of Boiler 3 and 4. The permits retain the $NO_X$ emission limits of 0.13 lb/mmbtu. The six hour start-up and shutdown exemption remains and clarifies that the unit must stay below the 0.2 lb/mmbtu RACT limit. The RACT limit also applies during periods of maintenance and malfunctions, as well as during abnormal steam demands not to exceed 7 days. The steam injection systems divert steam for $NO_X$ reduction that could otherwise be used to start up other units during refinery-wide upsets.

## COMBINED CYCLE UNIT PERMITS

The Combined Cycle Units (I and II) received a permit for Selective Catalytic Reduction (SCR) systems. **Permits: APC-97/0503-CONSTRUCTION/OPERATION (Amendment 10) NSPS** were issued on July 2, 2014. An operation permit was not issued, the conditions of this amendment were rolled directly into the Title V permit. The project reduced $NO_X$ emissions from 15 ppm to 3 ppm (without duct firing) and 18 ppm to 3.6 ppm (with duct firing). The permit provides an exemption during periods of maintenance or malfunction of the SCR. During these SCR outages, the facility must comply with the higher 15/18 ppm $NO_X$ emission limits of the unit. Additionally, the permit creates a petition provision whereby the facility may request alternative limits for the SCR for a defined period. The petition process is to allow the SCR to operate in a compromised state rather than require the facility to operate without the SCR at the higher limit via the malfunction exemption.

## FLUID CATALYTIC CRACKING UNIT PERMITS

The Fluid Catalytic Cracking Unit (FFCU) received **Permit: APC-82/0981-CONSTRUCTION (Amendment 12)(NSPS)** on April 23, 2015 to install a Selective Non-Catalytic Reduction (SNCR) system to the Carbon Monoxide Boiler (COB). The operation permit was issued on March 23, 2017. DCRC appealed both versions of the permit for its inclusion of short-term $NO_X$ limits. The settlement agreement retains the emission limits of 108.2 ppm 7 day rolling average and 79.3 ppmvd on a 365 day rolling average @ 0% oxygen. The permit provides an exemption from those limits during periods of malfunction. Instead the facility must meet the higher limits of 137.0 ppmvd on a 7 day rolling average basis and 100.7 ppmvd on a 365 day rolling average basis at 0% oxygen. These higher limits existed prior to the installation of the SNCR and are applicable at all times that the FCCU COB is operating.

## OTHER APPEALED ITEMS

Title V Permit

The Title V permit was appealed as subsequent significant permit modifications and renewals incorporated the short term $NO_X$ limits of the unit specific Regulation 1102 permits. A Secretary's Order associated with the Title V permit was also appealed. Following the issuance of the permits under the settlement agreement, this appeal will be dropped and the agreed upon permit revisions will be incorporated into the upcoming permit renewal.

RACT Appeal

Secretary's Order NO. 2014-A-0014 approved the *Revision to the Delaware State Implementation Plan for Meeting Reasonably Available Control Technology Requirements under the Federal Clean Air Act* ("the RACT Regulation"). The RACT Regulation includes reduced $NO_X$ emission limitations for the FCCU and FCU. DCRC has agreed as part of the Settlement Agreement to withdraw the RACT appeal within 30 days of the effective date (July 11$^{th}$) of the Agreement.

Fluid Coking Unit

The Fluid Coking Unit (FCU) received a permit to install Ultra Low-$NO_X$ Burners (ULNB). **Permit: APC-82/0829-CONSTRUCTION/OPERATION (Amendment 10)(PSD-NSR)** was issued February 3, 2016. It contained short-term $NO_X$ limits of 137.0 ppm on a 7-day and 30 day rolling average and 103.7 ppm on a 365 day rolling average. DCRC requested a 2 year extension of the construction permit under 7 Del. C. § 6004(e)(1). Under this provision, the permit cannot be appealed. DCRC withdrew the appeal following issuance of the extended permit of January 30, 2019. This permit is not included in the Settlement Agreement.

**RELEVANT DOCUMENTS**

| Document | Document Number | Document | Document number |
|---|---|---|---|
| Boilers 3 and 4 Op Permits Steam Injection | crr1426 | Boiler 3 and 4 Agreement Permit | ltr19015 |
| Steam Injection Memos | crr13035 (Const)<br>crr14029 (Oper) | | |
| Boilers 3 and 4 Op Permits IFGR | crr15002 | | |
| IFGR Memo | crr15001 | | |
| CCU SCR Permit | crr14020 (Const) | CCU Agreement Permit | ltr19014 |
| CCU SCR Memo | crr14019 | | |
| FCCU Construction Permit | crr15019 | FCCU Agreement Permit | ltr19016 |
| FCCU Operation Permit | crr17014 | | |
| FCCU SNCR Memo | crr15018 (Const) | | |
| FCU Extension Memo | adm19001 | | |

**RECOMMENDATIONS**
It is recommended that the attached permits be advertised for 30 days and undergo concurrent EPA review for 45 days.

ADM:LTR
F:/EngAndCompliance/LTR/ltr19018.doc

pc: Dover File
Lindsay Rennie